

## Product Data Sheet

### *Estar* Copolyester DN011

#### Application/Uses

- Cosmetic jar caps
- Cosmetic jars
- Displays
- Floor care
- Fragrance caps
- Lipstick containers
- Personal Care and Cosmetics
- Refrigerator interior components

#### Product Description

*Estar* Copolyester DN011 is a brilliantly clear polymer having excellent impact strength, chemical resistance, and low shrinkage rates. *Estar* Copolyester DN011 contains a mold release.

#### Typical Properties

Specific Gravity	D 792	1.23
Mold Shrinkage Parallel to Flow	D 955	0.002-0.005 mm/mm (0.002-0.005 in./in.)

#### Mechanical Properties

Tensile Stress @ Yield	D 638	44 MPa (6300 psi)
Tensile Stress @ Break	D 638	54 MPa (7800 psi)
Elongation @ Yield	D 638	4%
Elongation @ Break	D 638	330%
Tensile Modulus	D 638	1800 MPa (2.6 x 10 <sup>5</sup> psi )
Flexural Modulus	D 790	1800 MPa (2.6 x 10 <sup>5</sup> psi )
Flexural Strength	D 790	66 MPa (9600 psi)
Rockwell Hardness, R Scale	D 785	105
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	NB
@ -40°C (-40°F)	D 256	77 J/m (1.4 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
@ -40°C (-40°F)	D 4812	NB
Impact Resistance (Puncture), Energy @ Max. Load		
@ 23°C (73°F)	D 3763	46 J (34 ft·lbf)
@ -40°C (-40°F)	D 3763	46 J (34 ft·lbf)

#### Thermal Properties

Deflection Temperature

@ 0.455 MPa (66 psi)

D 648

73°C (163°F)

@ 1.82 MPa (264 psi)

D 648

64°C (147°F)

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**Optical Properties**

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Haze	D 1003	<1.0%
Regular Transmittance	D 1003	89%
Total Transmittance	D 1003	92%

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**Typical Processing Conditions**

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Drying Temperature	71°C (160°F)
Drying Time	6 hrs
Processing Melt Temperature	249-271°C (480-520°F)
Mold Temperature	16-38°C (60-100°F)

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**Comments**

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform to the values given.

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